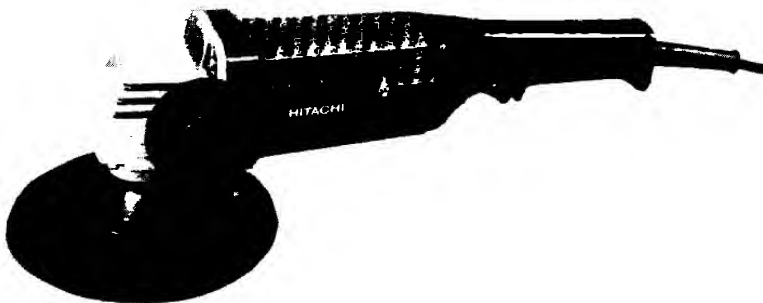




# HITACHI

## **DISC SANDER POLISHER MODEL SAT-180 INSTRUCTION MANUAL**



### **Note**

Before using this Electric Power Tool, carefully read through these **HANDLING INSTRUCTIONS** to ensure efficient, safe operation. It is recommended that these **INSTRUCTIONS** be kept readily available as an important reference when using this electric power tool.



**DOUBLE INSULATION**

We sincerely thank you for selecting a HITACHI ELECTRIC POWER TOOL. To operate this electric power tool safely and efficiently, please read this INSTRUCTION MANUAL carefully to get a good understanding of the precautions in operation, capacity of the electric power tool, use and the like.

**IMPORTANT INFORMATION : SAFETY RULES FOR POWER TOOLS**

**WARNING :** When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following:

**READ ALL INSTRUCTIONS**

1. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite injuries.
2. **CONSIDER WORK AREA ENVIRONMENT.**

Don't expose power tools to rain.

Don't use power tools in damp or wet locations.

Keep work area well lit.

Don't use tool in presence of flammable liquids or gases.

Power tools produce sparks during operation. They also spark when switching ON/OFF. Never use power tools in dangerous sites containing lacquer, paint, benzine, thinner, gasoline, gases, adhesive agents, and other materials which are combustible or explosive.

3. **GUARD AGAINST ELECTRIC SHOCK.** Prevent body contact with grounded surfaces. For example: pipes, radiators, ranges, refrigerator enclosures.
4. **KEEP CHILDREN AWAY.** Do not let visitors contact tool or extension cord. All visitors should be kept away from work area.
5. **STORE IDLE TOOLS.** When not in use, tools should be stored in dry, and high or locked-up place — out of reach of children.
6. **DON'T FORCE TOOL.** It will do the job better and safer at the rate for which it was intended.
7. **USE RIGHT TOOL.** Don't force small tool or attachment to do the job of a heavy-duty tool. Don't use tool for purpose not intended—for example—don't use circular saw for cutting tree limbs or logs.
8. **DRESS PROPERLY.** Do not wear loose clothing or jewelry. They can be caught in moving parts.  
Rubber gloves and non-skid footwear are recommended when working outdoors.  
Wear protective hair covering to contain long hair.
9. **USE SAFETY GLASSES.** Also use face or dust mask if cutting operation is dusty.  
All persons in the area where power tools are being operated should also wear safety eye protectors and face or dust masks.
10. **DON'T ABUSE CORD.** Never carry tool by cord or yank it to disconnect

from receptacle.

Keep cord from heat, oil and sharp edges.

11. **SECURE WORK.** Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.
12. **DON'T OVERREACH.** Keep proper footing and balance at all times.
13. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories.

Inspect tool cords periodically and if damaged, have repaired by authorized service facility.

Inspect extension cords periodically and replace if damaged.

Keep handles dry, clean, and free from oil and grease.

14. **DISCONNECT TOOLS.** When not in use, before servicing, and when changing accessories, such as blades, bits, cutters.
15. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
16. **AVOID UNINTENTIONAL STARTING.** Don't carry plugged-in tool with finger on switch. Be sure switch is off when plugging in.
17. **OUTDOOR USE EXTENSION CORDS.** When tool is used outdoors, use only extension cords intended for use outdoors and so marked.
18. **STAY ALERT.** Watch what you are doing. Use common sense. Do not operate tool when you are tired.
19. **CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation.  
A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this instruction manual.  
Have defective switches replaced by authorized service center.  
Do not use tool if switch does not turn it on and off.
20. **AVOID USING A POWER TOOL FOR APPLICATIONS OTHER THAN THOSE SPECIFIED.**

Never use a power tool for applications other than those specified in the instruction manual.

21. **ENSURE SAFE OPERATION THROUGH CORRECT HANDLING.**  
Secure safe operation through correct handling by observing the instructions described herein.

Do not employ accessories other than those specified herein; otherwise, a hazardous condition may be created.

Never allow a power tool to be used by persons not familiar with correct handling (such as children) or by those who cannot handle the tool correctly.

22. **CONFIRM THAT NO ITEMS SUCH AS AN ELECTRIC CABLE OR CONDUIT ARE BURIED INSIDE.** In places where live wiring may be hidden behind a wall, floor, ceiling, etc. do not hold or contact any metal parts of the tool. In such cases, metal parts could become electrically live and present a serious shock hazard.
23. **KEEP THE RIGHT PARTS IN THE RIGHT POSITIONS.**  
Do not remove covers and screws which have been factory-mounted. They perform important respective roles. Keep them in the right positions.
24. **SHOULD THE PLASTIC HOUSING OR HANDLE OF A POWER TOOL BE CRACKED OR DEFORMED, DO NOT USE IT.**  
Since cracked or deformed parts may lead to an operator receiving an electric shock, do not use such a power tool. Immediately have it repaired.
25. **SECURELY MOUNT ACCESSORIES AND BLADES TO THE TOOL MAIN BODY.** Extra care must be taken when using tools on elevated location (such as a roof ladder, scaffold, or the like) to prevent injury to someone on a lower level in the event the tool and/or accessory should drop.
26. **ALWAYS KEEP THE MOTOR AIR VENT FULLY OPENED.**  
A constantly open motor air vent is necessary to allow air to come in and out for cooling the motor. Do not allow it to become clogged up, even if dust is blown through it.
27. **OPERATE POWER TOOLS AT THE RATED VOLTAGE.**  
Operate power tools at voltages specified on their nameplates.
28. **NEVER TOUCH THE MOVING PARTS.**  
Never touch the moving parts such as blades, bits, cutters and others.
29. **STOP OPERATION IMMEDIATELY IF ANY ABNORMALITY IS DETECTED.**  
Should a power tool be detected as out of order or should other abnormalities be observed during operation, stop using the tool immediately.
30. **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.**  
Don't leave tool until it comes to a complete stop.
31. **CAREFULLY HANDLE POWER TOOLS.**  
Should a power tool be dropped or struck against hard materials inadvertently, it may be deformed, cracked, or damaged.
32. **DO NOT WIPE PLASTIC PARTS WITH SOLVENT.**  
Solvents such as gasoline, thinner, benzine, carbon tetrachloride, and

alcohol may damage and crack plastic parts. Do not wipe them with such solvents. Wipe plastic parts with a soft cloth lightly dampened with soapy water.

**33. WHEN REPLACING A COMPONENT PART, ADOPT THE SAME TYPE.**

When replacing a component part with a new one, adopt the same type of new part. Also, never attempt to repair a power tool yourself.

**34. SAVE THESE INSTRUCTIONS**


**SERVICE AND REPAIRS**

All quality tools will eventually require servicing or replacement of parts due to wear from normal use. These operations should **ONLY** be performed by an **AUTHORIZED HITACHI POWER TOOL REPAIR SHOP**.

**REPLACEMENT PARTS**

When servicing use only identical replacement parts.

**DOUBLE INSULATION SYSTEM ENHANCES SAFE OPERATION**

To enhance safe operation of this electric power tool, HITACHI has adopted a double insulation system. The term "double insulation" used here denotes an insulation system with two insulations physically separated and arranged between the electrically conductive material connected to the power supply and the outer frame subject to contact by the operator. Thus, the power tool is termed double insulated and both the "  " mark and "Double insulation", or either one is indicated on the name plate. While no external grounding is required with this system, normal safety precautions as outlined in this manual must still be followed.



DOUBLE INSULATION

To maintain the effectiveness of the double insulation system, follow the precautions described below:

1. Always contact your dealer or an authorized HITACHI power tool repair shop when assembling, disassembling or replacing parts other than accessories or carbon brushes. Improper assembly and/or replacement with wrong parts may result in eliminating the double insulation-feature.
2. Clean the exterior of the tool with a soft cloth moistened with soapy water, and dry thoroughly. Chloric solvent, gasoline, and thinner will cause plastic components to dissolve.

## PRECAUTIONS ON USING DISC SANDER POLISHER

1. Keep away from a revolving sanding disc and wool bonnet.
2. Pay strict attention to sparks.
3. Use the side handle to securely grip the Disc Sander Polisher.
4. Never use grinding wheel as a disc grinder.

## NAME OF PARTS

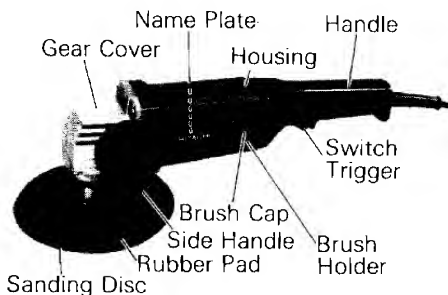


Fig. 1

## SPECIFICATIONS

Motor.	Single-Phase, Series Commutator Motor.
Power Source	Single-Phase 115V AC 60Hz
Input	750W
No Load Speed	3400/1900rpm
Sanding Disc Size	
external diam.	7"
internal diam.	7/8"
Weight	6.8lbs

## STANDARD ACCESSORIES

**Caution:** Recommended accessories for this Electric Power Tool are mentioned in this manual. The use of any other attachment or accessory might be hazardous.

(1) 7" Sanding Disc .....	5
(Grain: # 24, # 30, # 50, # 80, # 120.....leach)	
(2) Rubber Pad (Code No 953255P) .....	1
(3) 7" Wood Bonnet (Code No 949103) .....	1
(4) Wrench (A) (Code No 937914Z) .....	1
(5) Wrench (B) (Code No 937913Z) .....	1
(6) Side Handle (Code No 956633) .....	1

## APPLICATIONS

- ⦿ Grinding metal surfaces.
- ⦿ Preliminary sanding of metal surfaces before painting, rust removal, removing old paint before repainting.
- ⦿ Finishing woodwork, correcting projections of timbers from joints or assemblies.
- ⦿ Preliminary sanding of wood surfaces before applying paint.
- ⦿ Polishing or shining painted metal surfaces, such as those of automobiles, trains, elevators, refrigerators, sewing machines, washing machines, metal appliances, etc.
- ⦿ Polishing varnished surfaces of wooden furniture, etc.
- ⦿ Shining synthetic resin or ebonite products.

## PREPARATION PRIOR TO OPERATION

Before using the Electric Power Tool, complete the following preparations

### 1. Extension cord

Use an extension cord when the work site is removed from the power supply. In this case, an extension cord of sufficient thickness shall be used. Actually, use the shortest possible extension cord  
**Caution:** Damaged cord must be replaced or repaired.

### 2. Confirming condition of the environment

Confirm that the work site is placed under appropriate conditions conforming to prescribed precautions.

When sanding a thin steel plate, depending upon the state of the workbench, a loud noise will be created due to resounding noise from the steel plate being ground. To eliminate unwanted noise in this instance, place a rubber mat beneath the material to be ground.

## BEFORE USE

**Caution :** Confirm the following points prior to connecting the plug to the power receptacle.

### 1. Confirm the applied power source

Be sure to operate the Electric Power Tool in the voltage specified on the name plate.

### 2. Confirm that the power switch is turned OFF

If the plug is connected to the power receptacle while the power switch is turned ON, the machine starts operating unexpectedly, inviting serious accidents. Prior to using the Electric Power Tool, be sure to confirm that the power switch is turned OFF.

### 3. Confirming and mounting the sanding disc and wool bonnet

Confirm that the sanding disc is mounted under the specified condition and is firmly clamped.

For details, refer to the item "Assembling and Disassembling the Sanding Disc and Wool Bonnet" (See page 4)

### 4. Confirm the power receptacle

If the power receptacle only loosely accepts the plug, the receptacle must be repaired. Contact the nearest electric store for repair service.

If such a faulty receptacle is used, it may cause overheating, resulting in a serious hazard.

## PRACTICAL SANDER POLISHER APPLICATIONS

### ⦿ For use as a Sander

When using as a disc sander, set the speed to high (H) for maximum efficiency.

1. Do not heavily push the sanding disc to the surface to be ground. Grinding operation can be achieved with the machine dead weight, so maintain the sanding disc to an extent that it lightly touches the surface to be ground. When the sanding disc is pushed heavily, its revolving speed drops, creating an unevenly finished surface and causing motor seizure from overload.

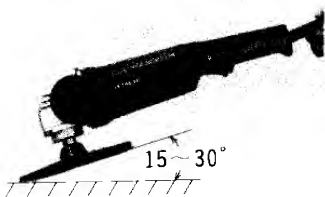


Fig. 2

2. Rather than applying the entire disc surface to the metal surface to be ground, use the sander by inclining it approximately  $15^{\circ} \sim 30^{\circ}$  to grind with the disc peripheral portion. (Fig. 2)

### 3. Switching on the sander polisher

When the trigger is pulled, the switch is turned ON, when the trigger is released, the switch is turned OFF.

### 4. Precaution after use

Do not lay the sander polisher down immediately after use in a place where there are many shavings and much dirt and dust until it has completely stopped revolving.

#### ©For use as a Polisher

When using as a polisher, the optimum speed can be obtained by setting the speed control to low (L)

1. Curved surface as well as plain one is treated for finishing. It is recommended to hold the polisher without pushing on the material, and make the best of its own weight as the excess pressure on the polishing surface will not only bring unsatisfactory result but also put unnecessary load on the motor.
2. Polishing compound or wax are used corresponding to the state of finishing and the maximum polishing effect will be attained when the following method is taken.

Polishing with a sander using fine sanding disc

Polishing with wool bonnet using compound substance final waxing.

First put the compound and wax in small quantity on the surface to be polished, then, give a polish with the wool bonnet.

**Caution :** Carefully guard against permitting the cable to touch the wool bonnet or sanding disc during operation. If the cord touches them, there is danger that it may become entangled.

## ASSEMBLING AND DISASSEMBLING THE SANDINGDISC AND WOOL BONNET

**Caution:** Be sure to switch power OFF and disconnect the attachment plug from the power receptacle to avoid serious trouble.

#### ©For use as a Sander

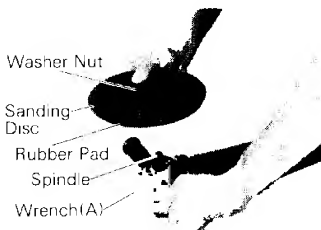


Fig. 3

- (1) After placing the sanding disc on the rubber pad, insert the washer nut through the spindle.
- (2) While holding the spindle with the accessory wrench (A) to prevent the spindle from turning, turn the washer nut clockwise with the accessory wrench (B) to screw it onto the spindle.  
Be sure to fully tighten the washer nut by using both wrench (A) and wrench (B).
- (3) To remove the sanding disc, follow the abovementioned procedure in reverse order.

#### ©For use as a Polisher

- (1) First pass the washer nut through the rubber pad.
- (2) While holding the spindle with the accessory wrench (A) to prevent the spindle from turning, turn the washer nut clockwise with the accessory wrench (B) to screw it onto the spindle.  
Be sure to fully tighten the washer nut by using both wrench (A) and wrench (B).



- (3) Wrap the rubber pad with the hood of the wool bonnet and firmly secure it by tying a string around it. Be sure the excess string is firmly tucked inside the wool bonnet to prevent it from flying out while polishing.

The unbalanced fitting of the wool bonnet may cause the vibration (Fig. 5)

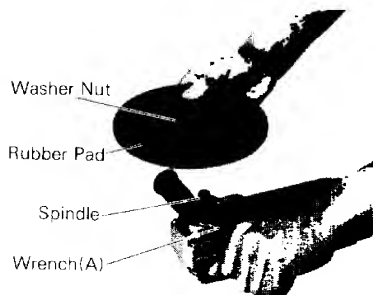


Fig. 4

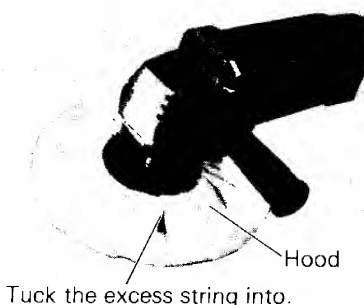


Fig. 5

- (4) To remove the wool bonnet, follow the above mentioned procedure in reverse order.

## MAINTENANCE AND INSPECTION

**Caution :** Be sure to switch power OFF and disconnect the plug during maintenance and inspection

### 1. Inspecting the carbon brushes

The motor employs carbon brushes as expendable components.

If the brushes are worn, motor trouble may result. When brushes are worn down to the limit line, replace them with new brushes. Also, keep the carbon brushes clean, so that they can be smoothly slide into the brush holders.

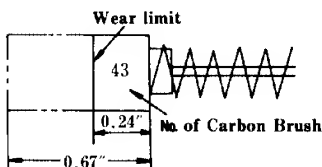


Fig. 6

When replacing carbon brushes with new brushes, be sure to use those for Hitachi Electric Disc Sander Polisher Type SAT-180 corresponding to the illustrated number (43).

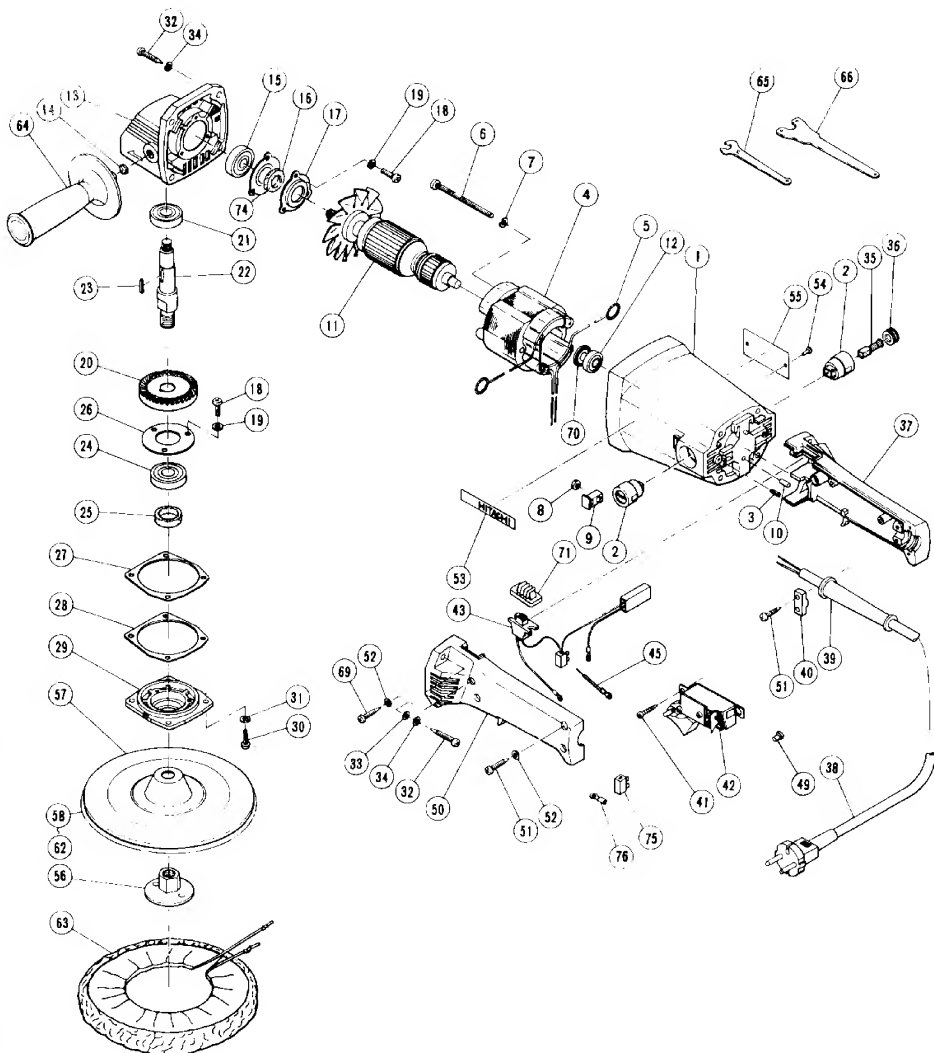
To replace a carbon brush, use a minushead screwdriver to disassemble the brush cap (Fig. 1) then remove the carbon brush together with the spring.

### 2. Inspecting tightness of various screws

Periodically inspect each screw tightness of individual components. If any screws are loosened, securely retighten them. Loosened screws, if unheeded, may cause a hazardous situation.

#### Note:

Due to HITACHI'S continuing program of research and development, the specifications herein are subject to change without prior notice



Item No.	Parts Name
1	Housing Ass'y
2	Brush Holder
3	Slotted Set Screw M4 x 5
4	Stator Ass'y
5	Brush Terminal
6	⊕ Hd. Machine Screw M5 x 55
7	Spring Lock Washer
8	Nut M5
9	Nut Cover
10	Bearing Lock
11	Armature Ass'y
12	Ball Bearing (608VVC2)
13	Gear Cover
14	Felt Washer
15	Ball Bearing (6002VVCM)
16	Felt Packing (A)
17	Bearing Cover
18	⊕ Hd. Machine Screw M4 x 12
19	Spring Lock Washer
20	Gear
21	Ball Bearing (6200VVCM)
22	Spindle
23	Feather Key 3 x 3 x 10
24	Ball Bearing (6202ZZC2)
25	Felt Packing
26	Bearing Cover (A)
27	Seal Packing (A)
28	Thrust Washer (B)
29	Packing Gland
30	⊕ Hd. Machine Screw M5 x 16
31	Spring Lock Washer
32	⊕ Tapping Screw M5 x 25
33	Washer
34	Spring Lock Washer

Item No.	Parts Name
35	Carbon Brush
36	Brush Cap
37	Handle (A)
38	Cord Ass'y
39	Cord Armor D10.7
40	Cord Clip
41	⊕ Tapping Screw M4 x 12
42	Double Pole Switch (Screw Type)
43	Slide Switch Diode Ass'y
45	Internal Wire Ass'y
49	Connector
50	Handle (B)
51	⊕ Tapping Screw M4 x 16
52	Washer
53	HITACHI Label
54	Rivet D2.5 x 4.8
55	Name Plate
56	Washer Nut
57	Rubber Pad
58	Sanding Disc CC # 24
59	Sanding Disc CC # 30
60	Sanding Disc CC # 50
61	Sanding Disc CC # 80
62	Sanding Disc CC # 120
63	Wool Bonnet 180mm
64	Side Handle
65	Wrench (A)
66	Wrench (B)
69	⊕ Tapping Screw M4 x 20
70	Dust Seal (A)
71	Slide Switch Cover
74	Distance Plate
75	Pillar Terminal
76	Terminal D4

Parts are subject to possible modification without notice due to improvements.

# **Hitachi Koki Co.,Ltd.**

Nippon Bldg.,  
2-6-2, Ohtemachi,  
Chiyoda-ku, Tokyo 100, Japan

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Code No.99473662 A  
Printed in Japan